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EXAMINER

CHANG, AUDREY Y

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/656,843

Applicant(s)

SATO ET AL.

Examiner

Audrey Y. Chang

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-42 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>2/6/2004</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Remark

- This Office Action is in response to applicant's preliminary amendment filed on February 6, 2004, which has been entered into the file.
- By this amendment, the applicant has amended claims 1, 6, 10, 15-17, 20-22, 25, 30-32, and 35-36.
- Claims 1-42 remain pending in this application.

1. The information disclosure statement filed on April 16, 2004 fails to comply with 37 CFR 1.98(a)(1), which requires the following: (1) a list of all patents, publications, applications, or other information submitted for consideration by the Office; (2) U.S. patents and U.S. patent application publications listed in a section separately from citations of other documents; (3) the application number of the application in which the information disclosure statement is being submitted on each page of the list; (4) a column that provides a blank space next to each document to be considered, for the examiner's initials; and (5) a heading that clearly indicates that the list is an information disclosure statement. The information disclosure statement has been placed in the application file, but the information referred to therein has not been considered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. **Claims 1-15, 16-20, 25-26, 31-35, and 40-41 are rejected under 35 U.S.C. 112, first paragraph**, as failing to comply with the **enablement** requirement. The claim(s) contains subject matter

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which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The specification and the claims **fail** to disclose how could a three-dimensional image display is enable by simply having a polarization direction converting means and a polarization means having a first polarization plate portion and a second polarization plate portion. It is known that the three-dimensional image display or illusion is achieved by **first** having an image segment for left eye perspective view and an image segment for right eye perspective view, and these image segments have to first be *polarized with a polarization state*, (such is crucial and is lacking from the claims). **Secondly** the polarization means having a first polarization plate portion and second polarization portion needs to have the two polarization portions each having a polarization state *matching one or the other* of the polarization states of the image light **after** passing the polarization direction converting means, respectively, so that the image light for the left eye perspective view **only reaches and perceived** by the **left** eye and the right eye perspective view **only reaches and perceived** by the right eye, respectively. Otherwise the three-dimensional view will not be achieved or established. Such crucial descriptions are completely lacking from the claims. By simply having these elements WILL NOT display three-dimensional image. Following the same reasoning, the specification and the claims fail to teach how could three dimensional image display be established by having a half wave plate as the polarization direction converting means and *a quarter wave plate* interposed between the image display portion and the polarization means, as recited in claims 3, 18 and 33). Where exactly is this quarter wave plate and how does it relate to the half wave plate to make the three-dimensional image display possible? Being one skilled in the art, the applicant must know the position of the quarter wave plate in relating to the polarization direction converting means and the polarization means are **crucial** in determining its function. This is completely lacking which makes the claims not enabling. Similarly, the specification and the claims **fail** to teach how could the three dimensional image display is achieved by having a half wave plate as the polarization

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direction converting means and another half-wave plate provided on one of the first and second polarization plate portions, as recited in claims 4, 19 and 34. What exactly is the function of this additional half wave plate? The polarization plate portions needed to have certain polarization state with respect to the polarization state of the image light in order for it to be enable however none of these are being presented in the claims. The claims therefore are not enabling.

The specification and the claim also fail to teach how could the image display portion being adjustable in angular position.

Claim Objections

4. Claims 1-14, 15-29 and 30-42 are objected to because of the following informalities:

(1). The phrase “a polarization direction of polarized light of said image information” recited in claim 1 is confusing since it is not how does this polarization direction and polarized light come from?

(2). Claims 1, 16, and 31 fail to provide a structural relationship between the first polarization plate portion and second polarization plate portion and a logical relationship such as their polarization states in relating to the polarization states of the light from the polarization direction converting means to make the scopes of the claims clear and definite. The applicant is respectfully noted that if the polarization states of the two portions are the same then no three-dimensional viewing will be allowed. If the polarization states of the two portions are not the same yet does not match with the polarization states of the image light from the polarization direction converting means then no three dimensional viewing will be possible either.

(3). The phrase “a separate wave plate” recited in claims 2, 17, and 32 is confusing and indefinite since it is not the wave plate is separate with respect to what?

(4). Claims 3, 18 and 33 are confusing and the scopes of the claims are not well established since it is not clear what is the *optical function* of the quarter wave plate and how does it relate to other polarization elements in the display to make the device operable. One skilled in the art would under stand

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that the half wave plate will rotate the polarization state by 90 degrees and the quarter wave plate will change the linear polarized light into circularly polarized light and vice versa. It is not clear if this is intended? If so how does it relate to the polarization state of the polarization means to make the device operable.

(5). Claims 4, 19 and 34 are confusing and the scopes of these claims are not well established since it is not clear how does this additional half wave plate relate to the polarization states of the polarization means to make the device operable. The polarization state of the polarization means for the two portions needs to be the same in order for the additional half wave plate to be able to make the three dimensional viewing possible.

(6). The phrase "said image display portion" recited in claim 28 is confusing and indefinite since it lacks proper antecedent basis for its based claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. **Claims 15 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by the patent issued to Faris (PN. 5,537,144).**

Faris teaches an *eye-glasses* for viewing stereoscopic image that is comprised of an *eye-glasses frame*, (9, Figure 6) serves as the *position holder* for holding polarization retarder (28), serves as the polarization direction converting means and a polarization means comprises a first polarization plate portion and a second polarization plate portion, (namely the two elements 29), wherein polarized light

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separated by the polarization directing converting means are respectively input on the two plate portions, (please see Figure 6). The eye-glasses frame serves to hold the positional relation between the polarization direction converting means and the polarization means.

This reference has therefore anticipated the claims.

7. Claims 15 and 30 are rejected under 35 U.S.C. 102(b) as being anticipated by International Application Published under PCT by Rosencwaig (WO95/00872).

Rosencwaig teaches a pair of *eye-glasses* (150, 156 Figure 5) for viewing stereoscopic image that is positioned over the viewer's eyes that implicitly includes a *frame*, serves as the *position holder* for holding the eye-glasses which, includes polarization retarder (152, 158), serves as the *polarization direction converting means*, and a first polarization plate portion (160) and a second polarization plate portion (154), together serves as *polarization means*, wherein polarized light separated by the polarization directing converting means are respectively input on the two plate portions, (please see Figure 5). The eye-glasses frame serves to hold the positional relation between the polarization direction converting means and the polarization means.

This reference has therefore anticipated the claims.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. **Claims 1-7, 9-10, 12-14, 15-22, 24-25, 27-29, 30-37, 39-40 and 42 are rejected under 35**

U.S.C. 103(a) as being unpatentable over the patent issued to Towler et al (PN. 6,222,672) in view of the patent issued to Petersen (PN. 5,076,665).

Towler et al teaches a *three dimensional image system* that is comprised of an *image display portion* (i.e. the liquid crystal portion 1, Figure 5) having a *first segment* and *second segment* (A and B) for displaying *right* and *left* eye perspective images respectively, (i.e. the parallax separated image). The image system further comprises a *linear polarizer* (5) for *polarizing* the image light from the two image segments and a *polarization direction converting means* (20) including a *half wave plate* for changing the polarization states of the polarized image light from the two segments into *two polarized light having different polarization states* (A' and B' with different polarization axes of 21 and 22, Figure 5). The three dimensional image system further comprises a *polarization means* having a *first polarization plate* (25 and 27) for *right eye* (14) and a *second polarization plate* for *left eye*, such that the polarization state of the image segment A' is matched with the polarization state of the first polarization plate for the right eye and the polarization state of the image segment B' is matched with the polarization state of the second polarization plate for the left eye so that the right eye image (A') is received and viewed by right eye only and the left eye image (B') is received and viewed by the left eye only in order for the stereoscopic image viewing condition to be established, (please see columns 6-8).

With regard to claims 3-5, 18-20 and 33-35, Towler et al teaches that the polarization direction converting means comprises a *half wave plate* (20, Figure 5). The features concerning the additional half wave plate or the quarter wave plate recited in the various claims however are objected to for the reasons stated above since the claims fail to give definite scopes. These features can only be examined in the broadest interpretations. Towler et al teaches in different embodiments that additional half wave plate may be included in the polarization means (Figure 5). Additional quarter plate can be included in the display device between the image display portion and the polarization means, (please see Figures 10, and

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14) for various reasons. Such modifications would then have been obvious to one skilled in the art for the benefit of including different designs of the stereoscopic image display devices to meet different viewing condition and quality needs. With regard to claims 5, 20 and 35, it is implicitly true by rotating the polarization means the specific polarization state matching and rejecting condition for allowing stereoscopic view will be destroyed and two dimensional image view will be achieved.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly to include a position holding mechanism for holding a positional relationship between the polarization means and the polarization direction converting means. However Towler et al does teach explicitly that the polarization means is comprised within a viewing arrangement that is associated with an observer and it is implicitly true that certain position relationship between the polarization direction converting means and the polarization means has to be maintained so that the corrected image segment will go to the correct polarization plate portion and therefore the corrected eyes. **Petersen** in the same field of endeavor teaches a position holder for holding a viewing arrangement (10, Figure 1) to a display device such as computer monitor wherein the position holder having *supporting rods*, (11) serve as the arms with a first end and a second end for holding to a lens frame (10) on the first end and for holding on to the frame of the display device at the second end, (with regard to **claims 7, 22 and 37**) and the distance, the parallelism and alignment between the lenses and the display device are held by the supporting rods (11), (with regard to **claims 6, 21, and 36**). **With regard to claims 10, 25 and 40**, Petersen teaches that there are position-adjusting means for changing the positions of the lens frame and therefore the viewing lenses in either the longitudinal direction (C in Figure 1), lateral direction (A in Figure 4) and vertical direction (A in Figure 1). In fact, with regard to **claims 12 and 27**, the supporting rods are extendable or contractible in the longitudinal direction, (please see Figure 1). **With regard to claims 9, 24 and 39**, Petersen teaches that a clip type of adjusting means is at the second end of the supporting rods for adjusting the position of the rods. It would then have been obvious to one skilled in

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the art to apply the teachings of **Petersen** to modify the stereoscopic image display device of **Towler et al** to use the supporting rods as a position holding means for holding the viewing arrangement including the polarization means in the fixed and supporting position with respect to the image display device having the polarization direction converting means for the benefit of allowing the positional relationship and the alignment of the polarization means and the polarization direction converting means be properly maintained to avoid possible errors occurs as the result of miss alignment.

With regard to claims 13 and 28, the claims concerning the display portions being adjustable in angular position is not well defined for the reasons stated above. The specification and the claim also fail to disclose how does such be achieved. It can only be examined in the broadest interpretation. It is understood in the art that most display device such as computer monitor has internal mechanism for adjusting angular position of the image displayed thereon. Such feature can therefore be obviously included for the benefit of providing good image display quality by adjusting the orientation of the image displayed.

With regard to claims 14, 29 and 42, these references do not teach explicitly that the polarization means is covered with transparent protective material. However it is rather obvious to one skilled in the art to use protective cover to protect it from environmental damage.

10. Claims 8, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Towler et al and Petersen as applied to claims 1, 15 and 30 above, and further in view of the patent issued to Sebastian (Des. 383,121).

The stereoscopic image display taught by Towler et al in combination with the teachings of Petersen as described for claims 1, 15 and 30 above have met all the limitations of the claims. These references however do not teach explicitly that a clip type position adjusting means is used to adjust the position of the polarization means. **Sebastian** in the same field of endeavor teaches a clip type adjusting

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means, (please see Figures 1-2) at the end of a supporting arm for adjusting the position of an enhancing screen placed in front of a display. It would then have been obvious to one skilled in the art to apply the teachings of **Sebastian** to use a clip type adjusting means as alternative means for holding the polarization means for the benefit of allowing an easy adjustment and easy attachment of the polarization means.

11. Claims 1-7, 10-14, 15-22, 25-29, 30-37, and 40-42 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patent issued to Towler et al (PN. 6,222,672) in view of the patent issued to Golf et al (PN. 6,417,894).

Towler et al teaches a *three dimensional image system* that is comprised of an *image display portion* (i.e. the liquid crystal portion 1, Figure 5) having a *first segment* and *second segment* (A and B) for displaying *right* and *left* eye perspective images respectively, (i.e. the parallax separated image). The image system further comprises a *linear polarizer* (5) for *polarizing* the image light from the two image segments and a *polarization direction converting means* (20) including a *half wave plate* for changing the polarization states of the polarized image light from the two segments into *two polarized light having different polarization states* (A' and B' with different polarization axes of 21 and 22, Figure 5). The three dimensional image system further comprises a *polarization means* having a *first polarization plate* (25 and 27) for *right eye* (14) and a *second polarization plate* for *left eye*, such that the polarization state of the image segment A' is matched with the polarization state of the first polarization plate for the right eye and the polarization state of the image segment B' is matched with the polarization state of the second polarization plate for the left eye so that the right eye image (A') is received and viewed by right eye only and the left eye image (B') is received and viewed by the left eye only in order for the stereoscopic image viewing condition to be established, (please see columns 6-8).

With regard to claims 3-5, 18-20 and 33-35, **Towler et al** teaches that the polarization direction converting means comprises a *half wave plate* (20, Figure 5). The features concerning the additional half

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wave plate or the quarter wave plate recited in the various claims however are objected to for the reasons stated above since the claims fail to give definite scopes. These features can only be examined in the broadest interpretations. Towler et al teaches in different embodiments that additional half wave plate may be included in the polarization means (Figure 5). Additional quarter plate can be included in the display device between the image display portion and the polarization means, (please see Figures 10, and 14) for various reasons. Such modifications would then have been obvious to one skilled in the art for the benefit of including different designs of the stereoscopic image display devices to meet different viewing condition and quality needs. **With regard to claims 5, 20 and 35**, it is implicitly true by rotating the polarization means the specific polarization state matching and rejecting condition for allowing stereoscopic view will be destroyed and two dimensional image views will be achieved.

This reference has met all the limitations of the claims with the exception that it does not teach explicitly to include a position holding mechanism for holding a positional relationship between the polarization means and the polarization direction converting means. However Towler et al does teach explicitly that the polarization means is comprised within a viewing arrangement that is associated with an observer and it is implicitly true that certain position relationship between the polarization direction converting means and the polarization means has to be maintained so that the corrected image segment will go to the correct polarization plate portion and therefore the corrected eyes. **Golf et al** in the same field of endeavor teaches a position holder for holding a viewing arrangement (14, Figure 1) to a display device such as computer monitor wherein the position holder having *axial adjusting means*, (30) serve as the arm with a first end and a second end for holding to a lens frame (15) on the first end and for holding on to the frame of the display device at the second end, (with regard to **claims 7, 22 and 37**) and the distance, the parallelism and alignment between the lenses and the display device are held by the axial adjusting means (30), (with regard to **claims 6, 21, and 36**). **With regard to claims 10-11, 25-26 and 40-41**, Golf et al teaches that there are position adjusting means for changing the positions of the lens frame

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and therefore the viewing lenses in either the longitudinal direction (Figure 1), vertical direction (Figure 2) and rotational direction (Figure 2). In facet, with regard to **claims 12 and 27**, the axial adjusting means is extendable or contractible in the longitudinal direction, (please see Figure 1). It would then have been obvious to one skilled in the art to apply the teachings of **Golf et al** to modify the stereoscopic image display device of **Towler et al** to use the axial adjusting means as a position holding means for holding the viewing arrangement including the polarization means in the fixed and supporting position with respect to the image display device having the polarization direction converting means for the benefit of allowing the positional relationship and the alignment of the polarization means and the polarization direction converting means be properly maintained to avoid possible errors occurs as the result of miss alignment.

With regard to claims 13 and 28, the claims concerning the display portions being adjustable in angular position is not well defined for the reasons stated above. The specification and the claim also fail to disclose how does such be achieved. It can only be examined in the broadest interpretation. It is understood in the art that most display device such as computer monitor has internal mechanism for adjusting angular position of the image displayed thereon. Such feature can therefore be obviously included for the benefit of providing good image display quality by adjusting the orientation of the image displayed.

With regard to claims 14, 29 and 42, these references do not teach explicitly that the polarization means is covered with transparent protective material. However it is rather obvious to one skilled in the art to use protective cover to protect it from environmental damage.

12. Claims 8, 23, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Towler et al and Golf et al as applied to claims 1, 15 and 30 above, and further in view of the patent issued to Sebastian (Des. 383,121).

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The stereoscopic image display taught by Towler et al in combination with the teachings of Golf et al as described for claims 1, 15 and 30 above have met all the limitations of the claims. These references however do not teach explicitly that a clip type position adjusting means is used to adjust the position of the polarization means. **Sebastian** in the same field of endeavor teaches a clip type adjusting means, (please see Figures 1-2) at the end of a supporting arm for adjusting the position of an enhancing screen placed in front of a display. It would then have been obvious to one skilled in the art to apply the teachings of **Sebastian** to use a clip type adjusting means as alternative means for holding the polarization means for the benefit of allowing an easy adjustment and easy attachment of the polarization means.

13. Claims 9, 24, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over the patents issued to Towler et al and Golf et al as applied to claims 1, 15 and 30 above, and further in view of the patent issued to Petersen.

The stereoscopic image display taught by Towler et al in combination with the teachings of Golf et al as described for claims 1, 15 and 30 above have met all the limitations of the claims. These references however do not teach explicitly that a clip type position adjusting means is used to adjust the position of the axial adjusting means. **Petersen** in the same field of endeavor teaches a clip type adjusting means, (please see Figures 1-2) at the end of a supporting arm for adjusting the position of supporting rod. It would then have been obvious to one skilled in the art to apply the teachings of **Petersen** to use a clip type adjusting means as alternative means for holding the axial adjusting means for the benefit of allowing an easy adjustment and easy attachment of the axial adjusting means or holder arm.

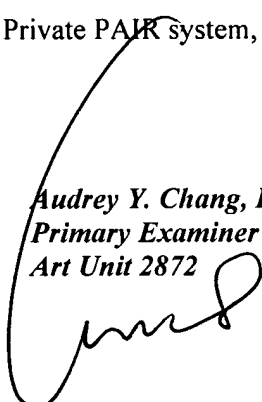
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Audrey Y. Chang whose telephone number is 571-272-2309. The examiner can normally be reached on Monday-Friday (8:00-4:30), alternative Mondays off.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Drew Dunn can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Audrey Y. Chang, Ph.D.
Primary Examiner
Art Unit 2872



A. Chang, Ph.D.